



The Dryden

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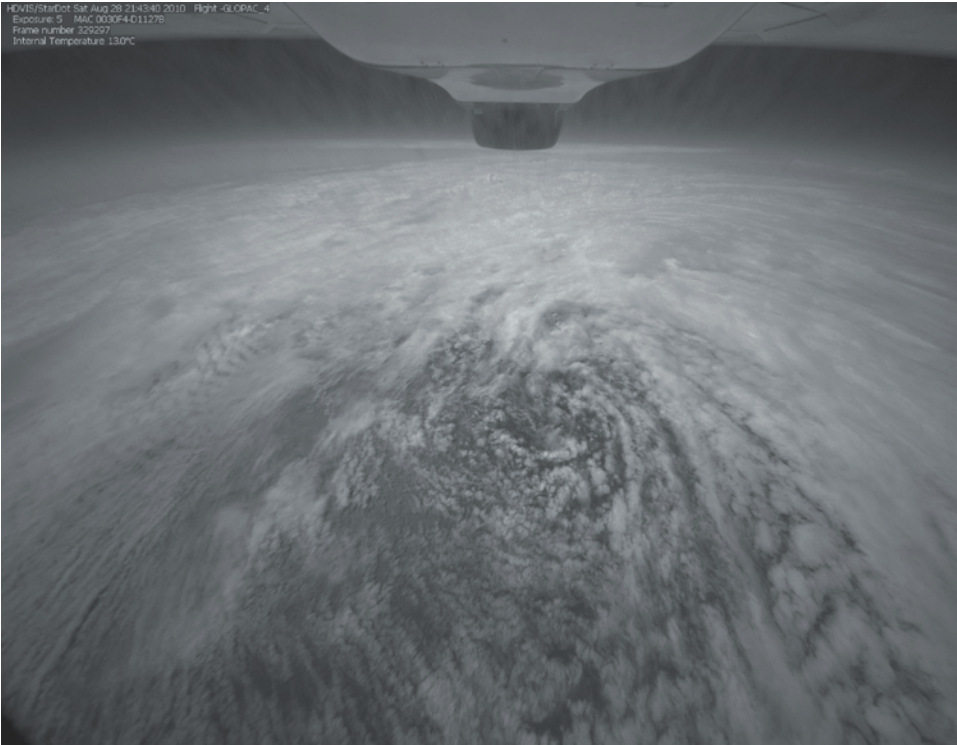
Science with Global Hawk

By **Beth Hagenauer**
Dryden Public Affairs

Last week marked the first anniversary of the NASA Global Hawk project’s initial science mission. On April 7, 2010, Global Hawk No. 872 took off from Dryden for its first science foray over the Pacific Ocean in the Global Hawk Pacific 2010 – or GloPac – science campaign.

Since that first science flight, NASA’s Global Hawks have flown 12 science missions for a total of 330 flight hours. The aircraft traveled more than 107,000 nautical miles to destinations as far south as the equator and to 85 degrees north latitude and west, toward Hawaii.

“The Global Hawk’s early missions have provided some exciting insights into its potential Earth system science use,” said Randy Albertson, deputy director of the Airborne Science



The swirling circulation pattern of Tropical Storm Frank, off the southwestern coast of Baja California, was captured by Ames Research Center’s HDVIs camera last summer. The camera was mounted on the aft fuselage of NASA’s Global Hawk unmanned research aircraft.

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NASA/NOAA Photo

Employees asked for budget ideas

By **Jay Levine**
X-Press Editor

Center Director David McBride asked Dryden employees at a town hall meeting April 6 to share ideas on how to reduce or streamline the Center Management and Operations budget in their respective areas.

A number of changes this year have been seen in that part of the budget, which covers just about everything that isn’t a project and saw a deficit at one point of more than \$7.3 million.

Regardless of what the final budget numbers are, it is expected that additional hits to the CM&O budget will be felt at Dryden, McBride said. To prepare for that, McBride asked people to be open-minded in looking at their work areas and those of others, but to be sensitive with recommendations as, often times, there are federal regulations or other requirements for what some people might see as something Dryden could make do without.

“There will be pain and some people might lose their jobs,” McBride said of the fluid budget environment.

A CM&O Cost Control Committee, headed by Jerry McKee, has already been grappling with the delicate balance between what the center needs to operate and staying within the budget. Some of the cuts have been felt in the thermostat controls, which have made the environment a little less comfortable, the reduction in maintenance staff, the deferred maintenance and a moratorium on hiring.

People with ideas are asked to e-mail or contact McKee.

Some ideas that could come from the Dryden workforce might include additional ways to share services with the Air Force or other partners, and looking for equipment that might not be essential but carries a monthly fee.

There is some good news. Dryden’s partners at the Air Force have passed

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Code O is all about airplanes

Code O was in the spotlight for the March 31 Dryden Forum event in hangar 4802.

Dryden Forums are presented occasionally to encourage employees to familiarize themselves with the center’s different organizations and services.

Bob Garcia, deputy aircraft maintenance chief, played host to more than a dozen exhibitors and to groups of employees visiting the hangar to learn more about the Flight Operations Directorate and other Dryden organizations.

Code O director Dave Wright gave welcoming remarks before introducing Garcia, who gave a Power Point presentation highlighting the staff and functions of codes OA (airborne avionics), OC (engineering support, including fabrication, telemetry and calibration), OE (operations engineering), OF (flight crew), OG (aircraft maintenance), OL (life support), OM (aircraft maintenance), OR (structural fabrication) and OS (shuttle support).

Mike Thomson is Code O deputy director.

“Code O employees are professionals and craftsmen,” Wright said in his remarks. “We’re proud of what they do.”

A variety of exhibits highlighted the work performed by Code O groups. Among the displays were those featuring an F404-400 GE engine from an F/A-18 aircraft, a Rake Airflow Gage Experiment and graphics illustrating work with the Crew Escape Vehicle and DC-



ED11 0098-19 NASA Photos by Tom Tschida
Above, from right, David Wright, Herman “Chico” Rijffkogel and Liz Kissling learn more about Dryden’s capabilities at the March 31 Forum event. At top right, Forum visitors also had an opportunity to see one of Dryden’s NASA 747 Shuttle Carrier Aircraft.



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8. Code OL, a recent addition to the Flight Operations Directorate, offered a seven-member life raft demonstration. Dryden’s shuttle crew transport vehicle and shuttle carrier aircraft were parked outside the hangar and available for employee tours.

Other tables were hosted by employees offering information on the NASA STI – Scientific and Technical Information – program as well as the center’s Speakers Bureau, social media outreach and technical library. The Employee Assistance Office booth featured a distinguished guest, Ella the therapy dog, who took a leisurely stroll around the hangar before heading back to work.

Code O’s efforts paid off for those who attended. Center managers hope to see increased exhibitor involvement and employee attendance in future Forum events.



ED11 0098-36
Below, Mike Buttigieg, left, demonstrates a computer-assisted drawing laser scanner to Nelson Brown, center, and Nalin Ratnayake.

NSSC news

The NASA Shared Services Center’s April edition of the NSSC News is now available.

The publication is available at <https://searchpub.nssc.nasa.gov/servlet/sm.web.Fetch/NSSCNEWSapril2011.pdf?rhid=1000&did=1010507&type=released>.

April 5, 1947 – Harold “Pappy” Dow and Alvin “Tex” Johnston of Bell Aircraft delivered the X-1 to Muroc Army Air Field, underneath JTB-29A.



April 9, 1985 – Space shuttle Atlantis (OV-104) arrived at Dryden Flight Research Facility following land rollover from Palmdale.

-Passings-

Former Dryden engineer Cleo M. Maxwell, 80, died March 31. A memorial service was held April 4 at Wayside Chapel in Rosamond, Calif. In lieu of flowers, donations may be made to the chapel or a charity of the donor’s choice.

Maxwell began work at Dryden in 1961 and was employed here for 34 years, 31 as a civil servant and three as a contractor prior to his 1995 retirement.

Can you hear me now?

New dish improves signal, capabilities

By Jay Levine
X-Press Editor

When the mesh aluminum of the Comm 3 satellite dish on the Western Aeronautical Test Range was wearing down, crews literally sewed up the problem. But the wind was consistently tearing the dish and it was becoming harder to fix. It had to be replaced.

During two days in March the Comm 3 dish was replaced with a larger dish that greatly expands the facility’s clarity and range of communications, said Mike Yettaw, group lead of the WATR communications and flight termination system group.

The new dish will provide clearer communication with the shuttle orbiters when they are overhead and the International Space Station.

“If we can see them, we can talk to them,” Yettaw said.

The new dish’s solid-fiberglass construction is more durable and “has more surface to gather in the signal,” he said. The old dish was 4.57 meters in diameter, or about 15 feet, and the new disk 6 meters, or about 20 feet. Aside from some fine-tuning, the new dish is about ready for use.

“We want everything to be perfectly aligned before we put it into service,” he added.

The new capability increases the communication range to the Arizona and California border for aircraft and provides more than twice the clarity and quality of the signal that could be received and sent by the previous dish, he said.

The group is responsible for ground-to-ground, NASA center-to-NASA center and ground-to-air communication during a mission. For example, the F/A-18 Integrated Resilient Aircraft Control project simultaneously used all the dishes and long-range communication capabilities of the group, but space shuttles and the International Space



ED11 0081-12

NASA Photo by Tom Tschida

***Above,** the Western Aeronautical Test Range communications and flight termination system group recently acquired and installed a replacement for the Comm 3 satellite dish. From left are Jon Batchelor, Kevin Bryant, Justin Thomas, Jovany Bautista and Mike Yettaw. **Below,** the Comm 3 satellite dish is installed.*



Photo courtesy Sky Yarbrough

Station have more specialized needs, Yettaw explained.

Dryden has one of just two

ground stations capable of sending and receiving communications on all of the available ISS frequencies, Yettaw said. The other station is at Goddard Space Flight Center’s Wallops Flight Facility. Goddard is located in Greenbelt, Md., and Wallops is located near Virginia’s eastern shore.

As a result of partnerships with the Air Force, Yettaw said Dryden intends to upgrade some of its equipment for an expanded role in its responsibility for flight termination systems and radar for the Air Force and Dryden. A new system that is scheduled for installation next fall will permit simultaneous support of the Air Force and Dryden.

For needs now and in the future, the communications and flight termination system group is honing its equipment and skills to be ready to answer when the call comes for its help.

News

at NASA

NASA selects shuttle homes

After 30 years of spaceflight, more than 130 missions and numerous science and technology firsts, NASA’s space shuttle fleet will be retired and put on display at institutions across the country.

NASA Administrator Charles Bolden announced April 12 where the four shuttle orbiters will be displayed permanently at the conclusion of the shuttle program.

Enterprise, the first orbiter built, will move from the Smithsonian’s National Air and Space Museum Steven F. Udvar-Hazy Center in Virginia to the Intrepid Sea, Air and Space Museum in New York. The Udvar-Hazy Center will become the new home for Discovery, which was retired after completing its 39th mission in March.

Endeavour, currently being prepared for its final flight at the end of this month, will go to the California Science Center in Los Angeles. Atlantis, which will fly the last planned shuttle mission in June, will be displayed at the Kennedy Space Center Visitor’s Complex in Florida.

NASA also announced that hundreds of shuttle artifacts have been allocated to museums and education institutions.

For more information about other shuttle program artifacts that are available to museums and libraries, visit http://gsaxcess.gov/htm/nasa/userguide/NASA_SSPA_Pamphlet.pdf.

NASA also is offering shuttle heat shield tiles to schools and universities that want to share technology and a piece of space history with their students. Schools can request a tile at <http://gsaxcess.gov/NASAWel.htm>.

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Program in NASA’s Earth Science Division. “Its range and endurance enables observations over parts of the globe that are difficult to reach for extended measurements over vast areas, particularly over the oceans and polar regions.”

The first GloPac science flight, one of several, lasted just over 14 hours. The high-altitude, long-endurance aircraft flew to an altitude of 60,900 feet and approximately 4,500 nautical miles. The flight path took the aircraft to 150.3 degrees west longitude and 54.6 degrees north latitude, just south of Alaska’s Kodiak Island.

The aircraft carried 11 instruments that allowed GloPac researchers to measure and sample greenhouse gases, ozone-depleting substances, aerosols and air quality in the upper troposphere and lower stratosphere. In the effort, a joint project of the National Oceanic and Atmospheric Administration and NASA, the Global Hawk flew several tracks under NASA’s Earth-observing satellites.

The GloPac mission paved the way for the multi-aircraft GRIP – Genesis and Rapid Intensification Processes – hurricane mission of late summer 2010. The six-week NASA mission, during which NASA’s DC-8 and WB-57 aircraft flew simultaneously on several data-collection flights, was a study of the formation and strengthening of tropical storms in the Gulf of Mexico and western Atlantic Ocean. Twenty passes were completed over

the eye of Hurricane Earl during one Global Hawk flight.

A third science campaign in early 2011, the Winter Storms and Pacific Atmospheric Rivers, or WISPAR, mission, explored atmospheric rivers and Arctic weather and collected targeted observations designed to improve operational weather forecasts. Led by NOAA, the WISPAR campaign successfully evaluated the capabilities of an automated dropsonde system, dispensing 177 sondes over the course of the mission’s three flights.

“To take a military asset, like Global Hawk, and modify it to enable Earth science research is a great accomplishment for the NASA Global Hawk team,” said Chris Naftel, Global Hawk project manager at Dryden. “The completion of three very complex science campaigns during the first year demonstrates the ability of this team to conquer a vast array of challenges.”

Global Hawk flight activity and scientific outreach are expected to grow considerably in coming years, with plans calling for two Earth Venture series missions. The Airborne Tropical Tropopause Experiment, or ATTREX, will allow scientists to study chemical and physical processes that control the flow of atmospheric gases at different times of the year. The Global Hawk will be deployed to several bases in the Pacific Ocean region during the course of the



ED10 0132-13

NASA Photo by Tony Landis

NASA’s Global Hawk No. 871 soars aloft from Edwards Air Force Base on its first checkout flight since being transferred to NASA in late 2007. The aircraft was the first Global Hawk built in the original Advanced Concept Technology Demonstration program, and is used along with NASA’s other Global Hawk, No. 872, for high-altitude, long-endurance environmental science missions.

ATTREX campaign.

The second Earth Venture mission, dubbed Hurricane and Severe Storm Sentinel, will study hurricanes in the Atlantic basin from a temporary base at NASA’s Wallops Flight Facility in Virginia during the 2012-14 Atlantic hurricane seasons.

“The Global Hawk’s potential is

sparking innovative development

of new Earth-observation strategies among the nation’s scientists and the international community as well,” Albertson added. “It’s a new catalyst for international scientific collaboration and facilitating substantial gains in our understanding of our planet as well as providing societal benefits around the world.”

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along some significant utility savings – about 40 percent.

McBride asked employees for careful consideration of ideas and reminded them of the need to make

sure proposed cuts will not result in an inability to meet milestones or cost more in the long run by creating more problems than the proposed solution would be solving.

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